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ABSTRACT

A comparative followup technique was used to assess sex nontraditional vocational training efforts in Oklahoma during the 1978-79 and 1979-80 school years. The dropout behavior, labor force participation, unemployment, training related employment, and wages of sex nontraditional and sex traditional students were compared. Training and labor outcomes for nontraditional students were compared first with those outcomes for traditional students of the same sex and second with those for traditional students of the opposite sex. Findings indicated that females who pursued male traditional vocational training were not achieving the level of labor market success of traditional students. Females in traditional male occupations earned significantly lower wages than males in those occupations, but they earned significantly higher wages than females in traditional occupations. Males in traditional female occupations earned significantly higher wages than females in those occupations, but they earned significantly lower wages than males in traditional occupations. The lower labor force participation rate and smaller ratio of work related to employment seemed to make aggressive recruitment of females for male traditional training ill-advised. Lack of an economic motive for encouraging male employment in traditional female occupations also made recruiting nontraditional males questionable. (Forty tables are included.) (YLB)

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FINAL REPORT

The Labor Force Behavior of Sex Nontraditional Vocational Students: A Follow-Up Assessment of Training for Nontraditional Occupations

By

Paula A. Smith

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Office of Business and Economic Research

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I. INTRODUCTION

The earnings gap between men and women has become a major social and economic issue. Data indicate that women working full time earn only 59¢ for every dollar earned by men and that the earnings gap has not narrowed substantially in recent years in spite of legal and social pressure for equal pay throughout the major part of two decades. One of the most striking features of occupational composition is how very few occupations include large numbers of both sexes (6) and although increasing numbers of women are securing better paying positions, the majority are still concentrated in traditional female occupations which are characterized by low pay and provide little opportunity for advancement (12). In the face of pervasive occupational segregation, "equal pay for equal work" even if fully enforced, would be expected to have little impact on the male-female earnings differential. Men and women simply do not do equal work.

In response to pressure from women's advocacy groups, the 1976 Vocational Education Amendments mandated schools to enroll and train students of both sexes for employment in sex nontraditional occupations. The economic motivation for enrolling females in male traditional programs was clearly the implicit assumption that training would end with employment in better paying jobs. The economic motivation for training males for lower paying female traditional employment was less clear.¹

¹Some proponents of male nontraditional training have pointed to the evidence that men employed in traditional female occupations earn more, on average, than the females in those occupations. They argue that increasing the proportion of males in these jobs will therefore result in higher wages in female traditional occupations. While it is obvious that the average wage will rise, ceteris paribus, as more relatively high-paid males enter the field, it does not necessarily follow that the wages of female incumbents will rise. In fact, classical economic theory would predict falling wages in response to increased supply.

Soon after the legislation was enacted the vocational education establishment began to promote sex nontraditional career choices.² Early phases of implementation focused on state and local administration and emphasized awareness-type activities designed to encourage acceptance of students in sex nontraditional training roles. Awareness workshops for teachers and counselors followed. Eventually "sex-fair" films and materials were identified and/or developed for use with students. These materials promoted nontraditional career choices by emphasizing higher average wages and enhanced opportunities for promotion, advancement, and self-employment.³

Empirical analyses have shown that vocational enrollment trends in Oklahoma have tended in the direction of a more favorable (i.e., more equal) male-female balance in the traditional single sex-oriented vocational programs. Data shown in annual editions of the State Plan for the Administration of Vocational and Technical Education (8) and the companion Accountability Report (7) document this trend.

In its twelfth Annual Report (10), the Oklahoma Advisory Council for Vocational Education reported that the percentage of total male enrollment in programs traditionally female oriented had risen from 9.7% in FY 1974 to 15.92% in FY 1980. The percentage of females enrolled in male oriented programs rose from 6.43% in FY 1974 to 13.53% in FY 1978, before falling somewhat to 11.51% in FY 1980.

²For a plan of action see the Five Year State Plan for the Administration of Vocational-Technical Education, (Stillwater, OK: State Department of Vocational and Technical Education) and subsequent annual editions.

³Some of those materials include "Other Women, Other Work", "Hey, What are Your Plans for the Next Sixty Years?", "Breakout" and "It's Her Future".

Rehman (9) examined the rate of minority to majority sex enrollment pre- and post-1976 legislation. He found a statistically significant greater ratio after 1976 and concluded that "there has been a significant positive change in nontraditional enrollment since 1976 when the comparison was made with the enrollments in nontraditional programs before 1976". He assumes that efforts described above contributed to this change.

Objective of the Research

The objective of this research was to examine training and labor market outcomes for students pursuing nontraditional occupational objectives; and more specifically, to assess the relative extent to which pursuing nontraditional vocational training has culminated in employment in the field for which trained (and for women, in higher paying jobs). While data cited above indicate that significant gains have been made in enrolling students in nontraditional training, there are four potential points of leakage between enrollment and related employment: 1) students may drop out of training prior to completion 2) students may not enter the labor market at the end of their formal education 3) students may be unemployed or 4) students may be employed in occupations that are not related to their training. This research will analyze the comparative behavior of students enrolled in traditional and nontraditional training along these four dimensions. In addition, a comparative wage analysis will be made for those students working in the occupation for which they trained.

II. RELATED LITERATURE

Considering the intense interest in promoting training for non-traditional occupations, relatively little research on the post-training labor market experiences of sex nontraditional students has been reported. There is, of course, ample literature supporting claims 1) that females have an earnings disadvantage 2) that females have been under-represented in vocational training and 3) that vocational training programs are traditionally single sex-oriented. There is also much literature on overcoming the barriers to nontraditional enrollment, on the sex bias of earlier vocational curricula and career counseling materials and reports or case studies of isolated and typically small exemplary programs to overcome sex bias, sex stereotyping and promote training in nontraditional vocational areas.⁴

While this body of literature is important as background information, it is not included in this review. Rather, the review focuses sharply on several studies that have direct implications for this research. Studies that group students by sex and the traditionality of their training are included. Some of the findings relating to systematic differences in personal traits which might have an impact on follow-up results are also reviewed.

Vetter and others (11), in a literature review of factors influencing nontraditional vocational enrollments, acknowledge the continuation of occupational sex segregation and related wage disparities and argue that the problem can be traced to male-oriented and male-dominated

⁴For an excellent annotated bibliography, see Heller (4).

training programs. However, they offer no evidence on the transition from nontraditional training to nontraditional employment, but instead focus entirely on the first step, that is the recruitment/enrollment phase.

In the only comparative follow-up analysis previously reported, Green (3) examines male-female dropout behavior in Kansas balance of state CETA programs by traditionality of the training program. He found a 9% dropout rate for males enrolled in traditional programs (N=130) and a 7% dropout rate for females enrolled in traditional female programs (N=111). The dropout rate for males in sex nontraditional programs (N=6) was 0%, while that for females in sex nontraditional programs (N=30) was 70%. Given the small frequencies in the nontraditional groups and the dramatic differences in dropout behavior, no statistical tests were made. To determine why the women in his study were not completing training, Green interviewed teachers and program directors. He reports that the following reasons were most often given: 1) the work was too demanding physically, 2) the students lacked motivation, 3) the students could not adjust to the working environment, and 4) there was male harassment. On the other hand, the reasons most often cited for explaining why some women completed training were 1) to prove a point, 2) sincere interest, 3) motivated by good pay, and 4) wider career opportunities. Green concluded "even in (the) type of situation in which women are free to pursue the career of their choice, this study indicated that females are failing to find success in occupations that are considered traditionally male".

Heller (4) also analyzes selected student behavior by sex and traditionality of college major. Data on 742 students were analyzed to determine 1) what students in various fields of study do on their

cooperative job assignments, 2) what they perceive their work conditions and responsibilities to be, 3) how they view their abilities, and 4) how their performance is rated by their employers. Student logs, rating sheets and a supervision questionnaire/rating sheet were used for data collection. As expected, the results indicated that working environment and conditions, work attitude, tasks and interpersonal interaction were sex-linked. Heller found, among other differences, that the females in her sample changed majors more frequently, had higher grade point averages, and higher job performance ratings. However, students majoring in fields where their sex was opposite that of the dominant group were reported to resemble in many ways the members of the dominant group rather than others of their own sex. A potentially important exception to this generalization was the tendency for all women, but especially those with nontraditional majors, to acknowledge that they had more personal problems than acknowledged by traditional males.

Knight (5) developed a model for recruitment, retention, and placement of female students in secondary vocational education programs that had traditionally been for males. His conclusions, based on onsite interviews in ten settings where females had been successfully recruited, trained and placed, included 1) retention is improved when two or more nontraditional students are enrolled in a vocational program; 2) teacher attitude is crucial to class acceptance of nontraditional students; 3) prior experience in the field is positively related to female participation in a nontraditional program; 4) role models are an important factor in the success of female nontraditional students; 5) sex-fair curriculum materials enhance nontraditional participation; and 6) support sessions give visibility to nontraditional students. In general, he found students in nontraditional programs to be more individualistic

and have more specific career goals than their traditional counterparts.

"The California Study on Women in Nontraditional Employment" (1), a descriptive report based on in-depth unstructured interviews, reported very few of the nontraditionally-trained women interviewed were currently working in the field for which they were trained and that many were, in fact, back in traditional jobs. Further all women interviewed said they were led to believe they would get jobs when they completed training. Traditional sex stereotyping, male attitudes, employer attitudes, conditioning, and lack of nontraditional role models were cited as barriers to nontraditional employment for women. Veteran's preference was identified as a legal barrier while unions and male-oriented training programs were described as institutional barriers. The report recommends technical assistance programs including counseling, job development, awareness workshops, career information services, physical preparedness, and remedial classes. A forty-five page annotated bibliography is appended.

Case study analyses⁵ led Campbell-Thrane and Budke (2) to the conclusion that there was sufficient evidence of employment related problems to warrant the attention of vocational educators. They recommend that the initial selection and placement of nontraditional employees proceed with "special care" since an unfavorable experience serves to reinforce negative attitudes about nontraditional employees.

⁵For example, "Forty-Six Pioneers: Louisiana Women in Nontraditional Jobs", (Baton Rouge: Louisiana Department of Health and Human Resources 1977) and "Women in Traditionally Male Jobs: The Experiences of Ten Public Utility Companies", (Washington, D.C.: Employment and Training Division, Department of Labor, 1978).

III. METHODOLOGY AND DATA

Enrollment, completion and follow-up data for 1977-78, 1978-79, and 1979-80 school years were obtained from the Oklahoma State Department of Vocational and Technical Education. Lack of coding compatibility made it necessary to exclude the 1977-78 data from the analysis leaving 164,288 observations.

Classification of Sex Traditional Training Programs

Each student record contained coding describing the student's career objective for enrolling in the training program. Occupational objectives were classified as 1) male traditional if 75% or more of the 1977-78 enrollment was male, 2) female traditional if 75% or more of the 1977-78 enrollment was female and 3) nonsex-traditional if the male/female enrollment ratio was less than 75/100 and greater than 25/100.⁶ Students enrolled in nonsex-traditional programs and non-occupational⁷ programs were eliminated from the population, leaving 92,341 students enrolled in sex traditional training programs.

Male traditional occupational objectives are listed in Table 1. Male vocational enrollment is heavily concentrated in vocational agriculture and trade and industrial programs, with females comprising only 8.5% of the vocational agriculture enrollment and 13.5% of the trade and industrial enrollment.

⁶Includes, for example, horticulture, general merchandising, commercial art, commercial photography and upholstery.

⁷Includes comprehensive homemaking, coordinated vocational education and training (CVET) and career orientation.

TABLE 1
MALE TRADITIONAL OCCUPATIONAL OBJECTIVES

<u>Vocational Agriculture</u>	<u>Trade & Industrial Continued</u>
0101XX Ag Production	171503 Radio/TV Repair
0102XX Ag Supplies & Services	171700 Foreman
0103XX Ag Mechanics	172100 Instrument Maintenance
0104XX Ag Foods	172301 Foundry
0106XX Ag Resources	172302 Machinist
0107XX Forestry	172306 Welder
0199XX Ag Other	172400 Metal Occupations
	172601 Barber
	172700 Plastics
	172801 Fireman Training
	172802 Law Enforcement
	173000 Refrigeration
	173100 Small Engine Repair
	173200 Energy Sources
	173400 Leather Work
	173600 Woodworking
	173601 Cabinetmaking
	179901 Truck Driver
	179902 Farm Machine Repair
	179903 Hydraulics
	179906 Electromechanical
<u>D. E.</u>	
040300 Automotive	
040900 Hardware	
041200 Industrial Marketing	
041600 Petroleum	
<u>Health Occupations</u>	
070909 Funeral Service	
<u>Trade & Industrial</u>	
170100 Air Conditioning	
1702XX Appliance Repair	
170301 Auto Body	
170302 Auto Mechanics	
170399 Auto Parts	
1704XX Aircraft Mechanics	
1705XX Blueprint Reading	
170519 Building & Grounds Maintenance	
170600 Business Machine Repair	
171001 Carpentry	
171002 Electricity	
171003 Heavy Equipment Operator	
171004 Masonry	
171007 Plumbing - Pipefitting	
171099 Construction Management	
171100 Custodial Services	
171200 Diesel Mechanics	
171300 Drafting	
171400 Electrician Related	
171402 Electric Lineman	
171502 Electronics	

Within specific trade and industrial occupations females represented as little as 1.5% of the auto body enrollment, 3.1% of the carpentry enrollment, 2.5% of the electricity enrollment, 3.6% of the brick masonry enrollment, .7% of the diesel mechanics enrollment, and 2.2% of the welding enrollment.

Female traditional occupational objectives are listed in Table 2. Female vocational enrollment is heavily concentrated in health occupations, business and office and occupational home economics programs with males comprising 11.2% of the health occupations enrollment, 10.6% of the occupational home economics enrollment, and 14.8% of the business and office enrollment. Within specific female traditional occupational objectives, males comprised as little as 0.0% of the dental assistant enrollment, 3.9% of the practical nursing enrollment, and 1.2% of the secretarial training enrollment.

Finally, students who were currently (that is, contemporaneously) enrolled were eliminated, leaving 43,637 students who had exited sex traditional training programs during 1978-79 and 1979-80. These 43,637 students, comprising the population of this study, were divided into four groups based on their sex and the traditional orientation of their occupational objective. Males enrolled in traditional male occupational objectives were identified as traditional males, while males enrolled in female traditional occupational objectives were identified as nontraditional males. Traditional and nontraditional females were identified in an analogous manner. Table 3 contains a breakdown of the population. As Table 4 shows, a significant portion of the population was enrolled

TABLE 2
FEMALE TRADITIONAL OCCUPATIONAL OBJECTIVES

D. E.

040200 Apparel & Accessories
040500 Floristry
040600 Food Distribution

Health Occupations

070101 Dental Office Assistant
070203 Medical Lab Technician
070204 Medical Lab Aid
070210 Medical Record Technician
070302 Practical Nurse
070303 Nurse Assistant
070401 Occupational Therapy Assistant
070402 Physical Therapy
070815 Community Mental Health
070904 Medical Office Assistant
070914 Medical Assistant
0799XX Health Other

Occupational Home Economics

090201 Child Care
090202 Clothing Management Services
090203 Food Management Services
090204 Home Furnishing Services
090205 Institutional Home Management
090298 Home Health Aid

Business & Office

14.01XX Bookkeeping
14.0202 Key punch Machine Operator
14.0299 Business, D.P., Other
14.03XX General Office
14.04XX Communications
14.06XX Personnel
14.07XX Secretarial
14.09XX Clerk-Typist
14.99XX Other Business & Office

Trade & Industrial

17.2602 Cosmetology

TABLE 3
POPULATION BY SEX & TRADITIONALITY
OF OCCUPATIONAL OBJECTIVE

Groups		Traditional Males	Nontraditional Males	Traditional Females	Traditional Females
Total	Number (%)	25,114 (57.6)	1,286 (2.9)	15,282 (35.0)	1,955 (4.5)
Oklahoma City & Tulsa		3,092	382	3,490	267
Cities (20,000- 100,000)		5,880	371	5,100	382
Cities (< 20,000)		16,142	533	6,692	1,306
Area Vo-Tech Schools		11,941	521	9,819	708
Comprehensive High Schools		13,119	760	5,427	1,247
14-15 Year Olds		340	8	165	39
16-17 Year Olds		19,346	949	9,272	1,393
18-24 Year Olds		4,178	226	3,208	250
25-34 Year Olds		682	65	1,415	154
35-44 Year Olds		279	19	749	75
Over 44 Years Old		216	18	365	39

TABLE 4
RELATIVE IMPORTANCE OF AGRICULTURE PRODUCTION
(0101XX) ENROLLMENT IN THE POPULATION

Group	Traditional Males			Nontraditional Females		
	Total	Ag Prod	(% of Total)	Total	Ag Prod	(% of Total)
Total	25,114	5,128	20.4	1,955	779	39.8
Oklahoma City & Tulsa	3,092	6	0.0	267	12	4.5
Small Cities (20,000-100,000)	5,880	290	4.9	382	115	30.1
Rural Cities (< 20,000)	16,142	4,832	29.9	1,306	652	49.9
Area Vo-Tech Schools	11,941	50	0.0	708	28	4.0
Comprehensive High Schools	13,119	5,078	38.7	1,247	751	60.2
14-15 Year Olds	340	51	15.0	39	20	51.3
16-17 Year Olds	19,346	4,416	22.8	1,393	700	50.3
18-24 Year Olds	4,178	630	15.1	250	42	16.8
25-34 Year Olds	682	17	2.5	154	8	5.2
35-44 Year Olds	279	4	1.4	75	6	8.0
Over 44 Years Old	216	5	2.3	39	2	5.1

in production agriculture occupational objectives. In fact, production agriculture represented over 20% of the traditional male enrollment and almost 40% of the nontraditional female enrollment. Given this overrepresentation, it is possible that some production agriculture specific behaviors might "swamp" the results and give a distorted view of comparative training outcomes. For this reason, the entire analysis was done inclusive and exclusive of agriculture production. The impact of excluding students enrolled in agriculture production is shown in Table 37.

Description of Follow-Up Classification

Completion-Drop Status

Students who terminate training prior to completion of the program are classified as "drops". Drops include students 1) who transferred out of vocational education into an academic or general education program, 2) who transferred to another vocational program, and 3) who left school before completing training. Students who transferred to another school were not classified as drops since a family move is generally beyond the students' control.

Labor Market Status

Students who exited training during the school year were contacted during the fall of that year to determine their labor market status and were subsequently assigned a VEDS (Vocational Education Data System) follow-up code describing their status. A brief discussion of the labor market classifications relevant for this analysis follows.

Upon exiting training, some students pursue additional (post-secondary)

education or enter the armed forces. The remainder are presumed to be available for job placement. Students in the latter group, that is, those who are presumably available for placement, are classified as in the labor force if they are either employed or unemployed but seeking employment. Students who are not working, not looking for work, and not in school or the armed forces are classified as not in the labor force.⁸ The employment and unemployment classification is straight-forward and requires no elaboration. For those students who were employed, the teachers were asked to classify their employment as 1) directly or closely related to their vocational field of training or 2) only remotely or not related at all to their training. Students in the first group were classified as employed related, while students in the second group were employed unrelated.

Impact of Including School Dropouts in Subsequent Analysis

Note that the labor market outcomes considered are not dependent on the students' completion status; that is, no subsequent distinction is made between students who drop out of school before completion of training and those who complete the training sequence. The inclusion of "drops" is clearly a source of potential bias, but in what direction? Students may drop out of school to accept full-time employment or the failure to complete training may be a detriment to employment. As Table 5 shows including drops is relatively (and somewhat surprisingly) advantageous to the nontraditional female group. The relatively higher

⁸ This analysis implicitly treats matriculation into college and enlisting in the armed forces in a neutral manner.

TABLE 5
IMPACT OF INCLUDING "DROPPED FROM SCHOOL"

	Dropped from School		Completed Training		Ratio ¹
	Employed Related	Not Employed Related	Employed Related	Not Employed Related	
Traditional Males	656	4,723	4,454	11,524	≈ 1/3
Nontraditional Males	26	219	271	607	≈ 1/4
Traditional Females	428	2,857	4,322	6,478	≈ 1/4
Nontraditional Females	44	390	181	998	≈ 2/3

$$^1 \text{ Ratio} = \frac{\frac{\text{Employed Related Drop}}{\text{Not Employed Related Drop}}}{\frac{\text{Employed Related Completed}}{\text{Not Employed Related Completed}}}$$

ratio of employed related drops to employed related completers indicates that among school dropouts, nontraditional females are more apt to be employed related than are dropouts in the other three groups.

Conceptual Framework: Welfare and Efficiency
Measures for Assessing the Effectiveness
of Sex Nontraditional Training

A policy to promote training in sex nontraditional occupations may have benefits (or costs) at two levels. First, the individuals who pursued nontraditional training may benefit; that is, there may be individual "welfare" effects associated with departure from tradition. Clearly these effects may be either positive or negative - nontraditional students may be better off or worse off than they would have been had they followed a more traditional path. To assess the extent of and the nature of these welfare effects, we can ask: "When compared with traditional students of their own sex, are students who enroll in nontraditional training programs likely to be better off (more likely to complete the training program, enter the labor market, obtain employment in an occupation related to their training and earn higher wages) or are they likely to be worse off (more likely to drop out of training before completion, not enter the labor force, be unemployed, be employed in an occupation unrelated to their training and/or earn lower wages)?" In other words, do females who enroll in welding fare better or worse, on average, than the females who enroll in secretarial training? Similarly, do males who enroll in child care fare better or worse, on average, than males who enroll in carpentry?

A policy to promote sex nontraditional vocational enrollment may also have social benefits (or costs). Consider a representative sex

traditional training program, say auto mechanics. Assume that given the educational resources available only 3,000 training slots can be provided. Those slots must be rationed among students in the state desiring auto mechanics training. Now suppose some of these slots are awarded to females and that, when compared with male auto mechanics students, females turn out to have a higher dropout rate, a lower labor force participation rate, a higher unemployment rate, and proportionately fewer are employed related, then scarce training resources have been under utilized or worse, wasted. Moreover, the additional males who would have enrolled and the greater proportion of them that would have ultimately ended up employed as auto mechanics have had to settle for some other type training or none at all. And finally, society has foregone the services of those additional auto mechanics. To assess the extent and direction of these "efficiency effects" we can ask: "Are students who enroll in nontraditional training less likely to succeed in the labor market than traditional students?" For example, are females who enroll in auto mechanics less likely to be employed related than males enrolled in auto mechanics? If nontraditional students fare worse in the labor market, recruiting, enrolling and training them represents a social cost since the resources used in the process could have been used more productively, on average, to train traditional students.

Impact of Community Size, School

Setting and Age of Student

Before proceeding, consider the implications of various potential findings from the previous section. Suppose we find both welfare and

efficiency effects are positive; then we would recommend continuation (and perhaps expansion) of nontraditional recruitment and training efforts. Realistically, however, the efficiency effect is not likely to be positive. If it were, if nontraditional students fared better than traditional ones, teachers motivated by maximizing their "product index" evaluation would have recruited the students with the better outcomes in the first place and a legislative mandate would not have been necessary. If we find efficiency effects to be negative and welfare effects positive, we will be faced with making a choice, a trade-off, between the two. In this case individual gains would have to be weighed against social costs. As another possibility, suppose we find that both effects are negative, on average, and further, that the gains accruing to those individuals who personally benefited are not great enough to compensate for the losses incurred by those who did not benefit, then we would conclude that recruitment for nontraditional training is an inappropriate use of public resources and ideally, we would recommend that this activity be discontinued until the negative welfare effects could be overcome. However, given existing legal constraints, it is probable that nontraditional training will be required regardless of these findings and, if so, it would be desirable to concentrate those efforts among groups where the negative effects are least pronounced.

For example, negative effects may be less prominent in the state's larger cities which are presumably characterized by more social tolerance and a more competitive labor market. Further, the presence of larger firms may have a positive impact since these larger employers are more likely to have government contracts, union agreements or increased visibility making them more vulnerable to legal action for alleged discrimi-

nation. Area vocational-technical schools with higher concentrations of students from blue collar backgrounds may be less liberal socially than comprehensive high schools which enroll students from a broader socio-economic spectrum; on the other hand, area school students may be more labor-market oriented. Moreover, area school students have direct access to formal job counseling and job placement services. The comparative advantage will depend on which of these effects are predominate. Similarly, negative effects may be more pronounced for younger students who are hypothesized to make less mature choices than their adult counterparts.

Statistical Analysis

Differences between traditional females, nontraditional females, traditional males and nontraditional males for each effect (dropout, labor force participation, unemployment, employed relatedness and wages), were analyzed for the total population, large, medium and small cities, area vo-tech and comprehensive high schools and six age groups. Chi-square was used as a test of significance. Chi-square, a nonparametric statistic, does not require any limiting assumptions about the shape of the parameter distribution.

IV. AN ASSESSMENT OF TRAINING AND LABOR MARKET

OUTCOMES FOR SEX NONTRADITIONAL STUDENTS

Training and labor market outcomes for females enrolled in sex nontraditional occupational objectives were compared with outcomes for students enrolled in traditional occupational objectives to identify any "welfare" or "efficiency" effects associated with pursuing nontradi-

tional training. The results appear in Table 6.

The dropout rate for nontraditional females (almost 40%) was found to be significantly higher than that for females enrolled in traditional training objectives. The nontraditional female dropout rate was also higher than that for males enrolled in the same set of training programs. Relating the interpretation of this finding to the taxonomy outlined in Section III, this result indicates a negative welfare effect; that is females who pursued nontraditional training objectives were worse off on average than those who pursued more traditional objectives. The results imply a negative efficiency effect as well, suggesting that a greater fraction of the resources allocated to training for male traditional occupations was underutilized than would have been expected had the slots been allocated only to male students.

The labor force participation rate for nontraditional females was found to be significantly lower than the traditional male rate. Given the well-documented sex differences in labor force participation, this finding was anticipated and should be interpreted cautiously in the assessment of female nontraditional training. The difference in participation between nontraditional females and traditional females is more interesting. While almost 80% of the traditional females exiting school entered the labor force, only 66.7% of those pursuing nontraditional training were in the labor force. Initially, I hypothesized that females who pursued nontraditional occupational objectives would also exhibit nontraditional labor force participation behavior. Specifically, based on the work of Heller (4) these nontraditional females would be expected to have a more male orientation toward labor force participation. Note, however, that the absolute and relatively high

TABLE 6

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR FEMALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Total Population)

Outcome	Traditional Females	Nontraditional Females	Traditional Males
Number Completed Training	10,800	1,179	15,978
Number Dropped Training	4,482	776	9,136
(% Dropped)	(29.3)	(39.7)	(36.4)
	$\chi^2 = 87.34***$		$\chi^2 = 8.45**$
Number in Labor Force	6,723	506	10,012
Number Not in Labor Force	1,760	253	534
(% Labor Force Participation)	(79.3)	(66.7)	(95.0)
	$\chi^2 = 64.04***$		$\chi^2 = 869.29***$
Number Employed	6,123	429	9,277
Number Unemployed	600	77	735
(% Unemployed)	(8.9)	(15.2)	(7.3)
	$\chi^2 = 21.22***$		$\chi^2 = 40.84***$
Number Employed Related	4,755	226	5,121
Number Employed Unrelated	1,368	203	4,156
(% Employed Related)	(77.7)	(52.7)	(55.2)
	$\chi^2 = 135.85***$		$\chi^2 = 0.95$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

unemployment rate for nontraditional females (over 15%) suggests that the reduced participation may be symptomatic of discouraged workers, with nontraditional females dropping out of the labor force rather than facing an extended period of unemployment. The males in this population had lower unemployment rates than the females, regardless of the traditionality of training, another well-documented sex difference in labor market behavior. Finally, when compared to traditional females, a smaller proportion of the employed nontraditional females were employed in jobs related to their training. The employment related experience of nontraditional females was not significantly different from that of males pursuing the same set of occupational objectives. While there is no conclusive evidence to this effect, I suspect a significant portion of females trained for nontraditional careers, in fact, take traditional female jobs.

Training and labor market outcomes for males enrolled in sex nontraditional occupational objectives were compared with outcomes for students enrolled in traditional occupational objectives to identify the "welfare" and "efficiency" effects associated with enrolling in a male nontraditional field. The results appear in Table 7.

On balance, the results for male nontraditional students are more favorable than those for nontraditional females. Nontraditional males were found to have a significantly lower dropout rate when compared to males in traditional training programs and, although females enrolled in the same set of occupational objectives had a slightly lower dropout rate, the difference was not statistically significant at the .05 level. Applying the measures proposed in Section III we can say that the welfare effect for this dimension is positive; that is, nontraditional males are, on average, better off in terms of pro-

TABLE 7

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR MALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Total Population)

Outcome	Traditional Males	Nontraditional Males	Traditional Females
Number Completed Training	15,978	878	10,800
Number Dropped Training	9,136	408	4,482
(% Dropped)	(36.4)	(31.7)	(29.3)
	$\chi^2 = 11.27***$		$\chi^2 = 3.16$
Number in Labor Force	10,012	515	6,723
Number Not in Labor Force	534	35	1,760
(% Labor Force Participation)	(94.9)	(93.6)	(79.3)
	$\chi^2 = 1.56$		$\chi^2 = 66.21***$
Number Employed	9,277	481	6,123
Number Unemployed	735	34	600
(% Unemployed)	(7.3)	(6.6)	(8.9)
	$\chi^2 = 0.29$		$\chi^2 = 2.94$
Number Employed Related	5,121	297	4,755
Number Employed Unrelated	4,156	184	1,368
(% Employed Related)	(55.2)	(61.7)	(77.7)
	$\chi^2 = 7.67**$		$\chi^2 = 61.92***$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

gram completion than are traditional males. Similarly, the efficiency effect is neutral since there is not a statistically significant difference in the dropout rates of nontraditional males and the females enrolled in those same occupational objectives.

In the male nontraditional case, the expected higher male labor force participation rate leads to an efficiency gain from enrolling males in female-oriented programs. In contrast to the results for nontraditional females, no statistically significant difference was found in the labor force participation rates of nontraditional males compared to traditional males. Further, the nontraditional males had the lowest unemployment rate (6.6%) of any group, although the difference between nontraditional males and traditional students of both sexes was not statistically significant. Among those students who were employed, a larger proportion of nontraditional males were employed in a field related to their training when compared with traditional males; however proportionately fewer were employed related when compared to traditional females.

The Impact of Demographics

Nontraditional Females

Size of City. Table 8-10 present comparative follow-up results for different sized cities. As hypothesized, the negative welfare and efficiency effects identified earlier, are neutralized for nontraditional females who attended school in Oklahoma City and Tulsa.⁹ For

⁹Note the only significant difference is between the labor force participation rates of nontraditional females and traditional males.

TABLE 8

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR FEMALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Oklahoma City & Tulsa)

Outcome	Traditional Females	Nontraditional Females	Traditional Males
Number Completed Training	2,505	177	1,981
Number Dropped Training	985	90	1,111
(% Dropped)	(28.2)	(33.7)	(35.9)
	$\chi^2 = 3.39$		$\chi^2 = 0.44$
Number in Labor Force	1,548	91	1,242
Number Not in Labor Force	303	19	42
(% Labor Force Participation)	(83.6)	(82.7)	(96.7)
	$\chi^2 = 0.01$		$\chi^2 = 44.18***$
Number Employed	1,432	85	1,171
Number Unemployed	116	6	71
(% Unemployed)	(7.5)	(6.6)	(5.7)
	$\chi^2 = 0.01$		$\chi^2 = 0.01$
Number Employed Related	1,132	63	794
Number Employed Unrelated	300	22	377
(% Employed Related)	(79.1)	(74.1)	(67.8)
	$\chi^2 = 0.89$		$\chi^2 = 1.18$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 9

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR FEMALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Cities with Populations
20,000-100,000)

Outcome	Traditional Females	Nontraditional Females	Traditional Males
Number Completed Training	3,523	198	3,320
Number Dropped Training	1,577	184	2,560
(% Dropped)	(30.9)	(48.2)	(43.5)
	$\chi^2 = 47.69***$		$\chi^2 = 2.94$
Number in Labor Force	2,244	93	2,487
Number Not in Labor Force	585	48	121
(% Labor Force Participation)	(79.3)	(66.0)	(95.4)
	$\chi^2 = 13.52***$		$\chi^2 = 195.37***$
Number Employed	2,031	77	2,339
Number Unemployed	213	16	148
(% Unemployed)	(9.5)	(17.2)	(6.0)
	$\chi^2 = 5.17*$		$\chi^2 = 17.23***$
Number Employed Related	1,549	41	1,347
Number Employed Unrelated	482	36	992
(% Employed Related)	(76.3)	(53.2)	(57.6)
	$\chi^2 = 19.99***$		$\chi^2 = 0.41$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 10

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR FEMALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Cities & Towns with
Population < 20,000)

Outcome	Traditional Females	Nontraditional Females	Traditional Males
Number Completed Training	4,772	804	10,677
Number Dropped Training	1,920	502	5,465
(% Dropped)	(28.7)	(38.4)	(33.9)
	$\chi^2 = 48.71***$		$\chi^2 = 11.07***$
Number in Labor Force	2,931	322	6,283
Number Not in Labor Force	872	186	371
(% Labor Force Participation)	(77.1)	(63.4)	(94.4)
	$\chi^2 = 44.58***$		$\chi^2 = 620.63***$
Number Employed	2,660	267	5,767
Number Unemployed	271	55	516
(% Unemployed)	(9.2)	(17.1)	(8.2)
	$\chi^2 = 18.89***$		$\chi^2 = 29.39***$
Number Employed Related	2,074	122	2,980
Number Employed Unrelated	586	145	2,787
(% Employed Related)	(78.0)	(45.7)	(51.7)
	$\chi^2 = 133.20***$		$\chi^2 = 3.42$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

cities with populations between 20,000 - 100,000¹⁰ and those with less than 20,000, the results closely parallel those presented for the total population. A comparison across tables further highlights a comparative advantage for nontraditional females trained in Oklahoma City and Tulsa. For example, note that their unemployment rate ranges from 17.1% in the smallest cities to 6.6% in Oklahoma City and Tulsa.¹¹ Check square statistics for across table comparisons are shown in Table 39.

School Setting. Tables 11 and 12 present comparative follow-up statistics for nontraditional females and traditional students by type of school setting. Although no clear advantage emerges from the "within" type of school analysis, a comparison across tables suggests a slight comparative advantage for training nontraditional females in area vo-tech schools where their labor force participation rates and percent employed related are significantly higher. Summary data to be presented further support this contention.

Age of Student at Enrollment. As hypothesized negative effects for females exiting nontraditional programs vary with age at enrollment.¹² Tables 13-17, which summarize findings by age of student, indicate that negative effects tend to disappear for nontraditional females over 25 years of age. A comparison across tables further highlights the effect of age on training and labor market outcomes. Particularly note that the dropout rate for nontraditional females ranges from almost 40% for

¹⁰ See Table 38 for a listing of the cities included.

¹¹ Also note the relationship between high unemployment rates and low labor force participation (relative to traditional females) is further validated in these tables.

¹² Descriptive results for 14-15 year olds appear in Table 40.

TABLE 11

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR FEMALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Area Vo-Tech Schools)

Outcome	Traditional Females	Nontraditional Females	Traditional Males
Number Completed Training	6,764	374	6,786
Number Dropped Training	3,055	334	5,155
(% Dropped)	(31.1)	(47.2)	(43.2)
	$\chi^2 = 77.69***$		$\chi^2 = 4.20*$
Number in Labor Force	4,603	254	5,466
Number Not in Labor Force	1,161	85	239
(% Labor Force Participation)	(79.9)	(74.9)	(95.8)
	$\chi^2 = 4.49*$		$\chi^2 = 270.99***$
Number Employed	4,192	222	5,106
Number Unemployed	411	32	360
(% Unemployed)	(8.9)	(12.6)	(6.6)
	$\chi^2 = 3.48$		$\chi^2 = 12.82***$
Number Employed Related	3,337	145	3,049
Number Employed Unrelated	855	77	2,057
(% Employed Related)	(79.6)	(65.3)	(59.7)
	$\chi^2 = 24.99***$		$\chi^2 = 2.55$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 12

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR FEMALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Comprehensive High Schools)

Outcome	Traditional Females	Nontraditional Females	Traditional Males
Number Completed Training	4,012	805	9,157
Number Dropped Training	1,415	442	3,962
(% Dropped)	(26.1)	(35.4)	(30.2)
	$\chi^2 = 43.88***$		$\chi^2 = 14.49***$
Number in Labor Force	2,110	252	4,518
Number Not in Labor Force	593	168	295
(% Labor Force Participation)	(78.1)	(60.0)	(93.9)
	$\chi^2 = 63.37***$		$\chi^2 = 545.31***$
Number Employed	1,923	207	4,144
Number Unemployed	187	45	374
(% Unemployed)	(8.9)	(17.9)	(8.3)
	$\chi^2 = 19.56***$		$\chi^2 = 26.15***$
Number Employed Related	1,412	81	2,060
Number Employed Unrelated	511	126	2,084
(% Employed Related)	(73.4)	(39.1)	(49.7)
	$\chi^2 = 103.24***$		$\chi^2 = 84.1**$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 13

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR FEMALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(16-17 Year Olds)

Outcome	Traditional Females	Nontraditional Females	Traditional Males
Number Completed Training	6,811	841	12,175
Number Dropped Training	2,461	552	7,171
(% Dropped)	(26.5)	(39.6)	(37.1)
	$\chi^2 = 101.64***$		$\chi^2 = 3.53$
Number in Labor Force	3,721	295	7,276
Number Not in Labor Force	1,037	192	387
(% Labor Force Participation)	(78.2)	(60.6)	(94.9)
	$\chi^2 = 75.56***$		$\chi^2 = 814.65***$
Number Employed	3,405	243	6,736
Number Unemployed	316	52	540
(% Unemployed)	(8.5)	(17.6)	(7.4)
	$\chi^2 = 26.31***$		$\chi^2 = 39.56***$
Number Employed Related	2,538	91	3,623
Number Employed Unrelated	867	152	3,113
(% Employed Related)	(74.5)	(37.4)	(53.8)
	$\chi^2 = 153.15***$		$\chi^2 = 24.49***$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 14

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR FEMALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(18-24 Year Olds)

Outcome	Traditional Females	Nontraditional Females	Traditional Males
Number Completed Training	2,115	152	2,989
Number Dropped Training	1,093	98	1,189
(% Dropped)	(34.1)	(39.2)	(28.5)
	$\chi^2 = 2.48$		$\chi^2 = 12.68***$
Number in Labor Force	1,551	87	2,074
Number Not in Labor Force	412	43	104
(% Labor Force Participation)	(79.0)	(66.9)	(95.2)
	$\chi^2 = 9.77**$		$\chi^2 = 160.07***$
Number Employed	1,372	73	1,913
Number Unemployed	179	14	161
(% Unemployed)	(11.5)	(16.1)	(7.8)
	$\chi^2 = 1.23$		$\chi^2 = 6.70**$
Number Employed Related	1,082	40	1,050
Number Employed Unrelated	290	33	863
(% Employed Related)	(78.9)	(54.8)	(54.9)
	$\chi^2 = 21.77***$		$\chi^2 = 0.01$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 15

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR FEMALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(25-34 Year Olds)

Outcome	Traditional Females	Nontraditional Females	Traditional Males
Number Completed Training	962	104	404
Number Dropped Training	453	50	278
(% Dropped)	(32.0)	(32.5)	(40.8)
	$\chi^2 = 0.0006$	$\chi^2 = 3.29$	
Number in Labor Force	777	70	338
Number Not in Labor Force	155	7	16
(% Labor Force Participation)	(83.4)	(90.9)	(95.5)
	$\chi^2 = 2.47$	$\chi^2 = 1.79$	
Number Employed	724	65	323
Number Unemployed	53	5	15
(% Unemployed)	(6.8)	(7.1)	(4.4)
	$\chi^2 = 0.02$	$\chi^2 = 0.42$	
Number Employed Related	626	51	246
Number Employed Unrelated	98	14	77
(% Employed Related)	(86.5)	(78.5)	(76.2)
	$\chi^2 = 2.51$	$\chi^2 = 0.06$	

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 16

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR FEMALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(35-44 Year Olds)

Outcome	Traditional Females	Nontraditional Females	Traditional Males
Number Completed Training	543	47	174
Number Dropped Training	206	28	105
(% Dropped)	(27.5)	(37.3)	(37.6)
	$\chi^2 = 2.77$	$\chi^2 = 0.008$	
Number in Labor Force	431	33	154
Number Not in Labor Force	71	5	12
(% Labor Force Participation)	(85.9)	(86.8)	(92.8)
	$\chi^2 = 0.005$	$\chi^2 = 0.75$	
Number Employed	399	30	145
Number Unemployed	32	3	9
(% Unemployed)	(7.4)	(9.1)	(5.8)
	$\chi^2 = 0.0001$	$\chi^2 = 0.09$	
Number Employed Related	329	28	101
Number Employed Unrelated	70	2	44
(% Employed Related)	(82.5)	(93.3)	(69.7)
	$\chi^2 = 1.65$	$\chi^2 = 6.02^*$	

* Significant at .05 level
 ** Significant at .01 level
 *** Significant at .001 level

TABLE 17

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR FEMALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Over 44 Year Olds)

Outcome	Traditional Females	Nontraditional Females	Traditional Males
Number Completed Training	293	31	139
Number Dropped Training	72	8	77
(% Dropped)	(19.7)	(20.5)	(35.6)
	$\chi^2 = 0.009$	$\chi^2 = 2.76$	
Number in Labor Force	210	17	103
Number Not in Labor Force	70	2	10
(% Labor Force Participation)	(75.0)	(89.5)	(91.2)
	$\chi^2 = 1.32$	$\chi^2 = 0.04$	
Number Employed	193	16	99
Number Unemployed	17	1	4
(% Unemployed)	(8.1)	(5.9)	(3.9)
	$\chi^2 = 0.02$	$\chi^2 = 0.07$	
Number Employed Related	155	14	65
Number Employed Unrelated	38	2	34
(% Employed Related)	(80.3)	(87.5)	(65.7)
	$\chi^2 = 0.14$	$\chi^2 = 2.12$	

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

students less than 25 to barely half that for those over 44 years of age. The labor force participation rate ranges from 60.6% for the 16-17 year olds to over 90% for those between 25 and 35; unemployment rates vary from 17.6% for 16-17 year olds to 5.9% for those over 44 and the employed related as a percent of those employed increases from 37.4% of the 16-17 year olds to 93.3% of the 35-44 year old group. Statistical results for the across group comparisons are displayed in Table 39.

Nontraditional Males

Recall, that the welfare and efficiency effects of pursuing male nontraditional occupational objectives were either positive or neutral, with the exception of a negative efficiency effect encountered with respect to the smaller proportion of nontraditional males compared with traditional females who are employed in fields related to their training. Comparative follow-up results by size of city, type of school and age of students, displayed in Tables 18-27, indicate that this negative effect did not occur in cities with populations between 20,000 - 100,000. However, nontraditional males in these cities were found to have significantly lower labor force participation rates than traditional males. Note that the nontraditional male dropout rate (approximately 31%) does not vary with size of city and although labor force participation rates and unemployment rates vary somewhat, there is no statistical relationship between them and size of city (see Table 39). Employed related as a percent of those employed, was significantly higher in the mid-sized cities.

With respect to school setting, a slightly apparant advantage for

TABLE 18

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR MALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Oklahoma City & Tulsa)

Outcome	Traditional Males	Nontraditional Males	Traditional Females
Number Completed Training	1,981	262	2,505
Number Dropped Training	1,111	120	985
(% Dropped)	(35.9)	(31.4)	(28.2)
	$\chi^2 = 2.84$		$\chi^2 = 1.57$
Number in Labor Force	1,242	135	1,548
Number Not in Labor Force	42	6	303
(% Labor Force Participation)	(96.7)	(95.7)	(83.6)
	$\chi^2 = 0.16$		$\chi^2 = 13.76***$
Number Employed	1,171	127	1,432
Number Unemployed	71	8	116
(% Unemployed)	(5.7)	(5.9)	(7.5)
	$\chi^2 = 0.009$		$\chi^2 = 0.25$
Number Employed Related	794	73	1,132
Number Employed Unrelated	377	54	300
(% Employed Related)	(67.8)	(57.5)	(79.1)
	$\chi^2 = 5.05*$		$\chi^2 = 29.71***$

- * Significant at .05 level
** Significant at .01 level
*** Significant at .001 level

TABLE 19

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR MALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Cities With Populations
20,000 - 100,000)

Outcome	Traditional Males	Nontraditional Males	Traditional Females
Number Completed Training	3,320	253	3,523
Number Dropped Training	2,560	118	1,577
(% Dropped)	(43.5)	(31.8)	(30.9)
	$\chi^2 = 19.14***$		$\chi^2 = 0.09$
Number in Labor Force	2,487	144	2,244
Number Not in Labor Force	121	14	585
(% Labor Force Participation)	(95.4)	(91.1)	(79.3)
	$\chi^2 = 4.84*$		$\chi^2 = 12.31***$
Number Employed	2,339	137	2,031
Number Unemployed	148	7	213
(% Unemployed)	(6.0)	(4.9)	(9.5)
	$\chi^2 = 0.13$		$\chi^2 = 2.94$
Number Employed Related	1,347	98	1,549
Number Employed Unrelated	992	39	482
(% Employed Related)	(57.6)	(71.5)	(76.3)
	$\chi^2 = 9.79**$		$\chi^2 = 1.33$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 20

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR MALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Cities & Towns With Populations
Less Than 20,000)

Outcome	Traditional Males	Nontraditional Males	Traditional Females
Number Completed Training	10,677	363	4,772
Number Dropped Training	5,465	170	1,920
(% Dropped)	(33.9)	(31.9)	(28.7)
	$\chi^2 = 0.80$	$\chi^2 = 2.31$	
Number in Labor Force	6,283	236	2,931
Number Not in Labor Force	371	15	872
(% Labor Force Participation)	(94.4)	(94.0)	(77.1)
	$\chi^2 = 0.02$	$\chi^2 = 38.61^{***}$	
Number Employed	5,767	217	2,660
Number Unemployed	516	19	271
(% Unemployed)	(8.2)	(8.1)	(9.2)
	$\chi^2 = 0.001$	$\chi^2 = 0.25$	
Number Employed Related	2,980	126	2,074
Number Employed Unrelated	2,787	91	586
(% Employed Related)	(51.7)	(58.1)	(78.0)
	$\chi^2 = 3.17$	$\chi^2 = 43.08^{***}$	

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 21

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR MALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Area Vo-Tech Schools)

Outcome	Traditional Males	Nontraditional Males	Traditional Females
Number Completed Training	6,786	313	6,764
Number Dropped Training	5,155	208	3,055
(% Dropped)	(43.2)	(40.0)	(31.1)
	$\chi^2 = 2.02$	$\chi^2 = 17.37***$	
Number in Labor Force	5,466	218	4,603
Number Not in Labor Force	239	21	1,161
(% Labor Force Participation)	(95.8)	(91.2)	(79.9)
	$\chi^2 = 10.52**$	$\chi^2 = 18.00***$	
Number Employed	5,106	201	4,192
Number Unemployed	360	17	411
(% Unemployed)	(6.6)	(7.8)	(8.9)
	$\chi^2 = 0.32$	$\chi^2 = 0.20$	
Number Employed Related	3,049	127	3,337
Number Employed Unrelated	2,057	74	855
(% Employed Related)	(59.7)	(63.2)	(79.6)
	$\chi^2 = 0.83$	$\chi^2 = 30.04***$	

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 22

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR MALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Comprehensive High Schools)

Outcome	Traditional Males	Nontraditional Males	Traditional Females
Number Completed Training	9,157	561	4,012
Number Dropped Training	3,962	199	1,415
(% Dropped)	(30.2)	(26.2)	(26.1)
	$\chi^2 = 5.33^*$	$\chi^2 = 0.0004$	
Number in Labor Force	4,518	296	2,110
Number Not in Labor Force	295	14	593
(% Labor Force Participation)	(93.9)	(95.5)	(78.1)
	$\chi^2 = 1.07$	$\chi^2 = 51.40^{***}$	
Number Employed	4,144	279	1,923
Number Unemployed	374	17	187
(% Unemployed)	(8.3)	(5.7)	(8.9)
	$\chi^2 = 2.06$	$\chi^2 = 2.87$	
Number Employed Related	2,060	169	1,412
Number Employed Unrelated	2,084	110	511
(% Employed Related)	(49.7)	(60.6)	(73.4)
	$\chi^2 = 11.91^{***}$	$\chi^2 = 19.25^{***}$	

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 23

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR MALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(16-17 Year Olds)

Outcome	Traditional Males	Nontraditional Males	Traditional Females
Number Completed Training	12,175	663	6,811
Number Dropped Training	7,171	286	2,461
(% Dropped)	(37.1)	(30.1)	(26.5)
	$\chi^2 = 18.40***$		$\chi^2 = 5.48*$
Number in Labor Force	7,276	360	3,721
Number Not in Labor Force	387	19	1,037
(% Labor Force Participation)	(94.9)	(95.0)	(78.2)
	$\chi^2 = 0.008$		$\chi^2 = 59.51***$
Number Employed	6,736	334	3,405
Number Unemployed	540	26	316
(% Unemployed)	(7.4)	(7.2)	(8.5)
	$\chi^2 = 0.001$		$\chi^2 = 0.53$
Number Employed Related	3,623	197	2,538
Number Employed Unrelated	3,113	137	867
(% Employed Related)	(53.8)	(59.0)	(74.5)
	$\chi^2 = 3.25$		$\chi^2 = 36.68***$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 24

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR MALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(18-24 Year Olds)

Outcome	Traditional Males	Nontraditional Males	Traditional Females
Number Completed Training	2,989	162	2,115
Number Dropped Training	1,189	64	1,093
(% Dropped)	(28.5)	(28.3)	(34.1)
	$\chi^2 = 0.0009$	$\chi^2 = 2.88$	
Number in Labor Force	2,074	106	1,551
Number Not in Labor Force	104	8	412
(% Labor Force Participation)	(95.2)	(93.0)	(79.0)
	$\chi^2 = 0.74$	$\chi^2 = 12.18***$	
Number Employed	1,913	101	1,372
Number Unemployed	161	5	179
(% Unemployed)	(7.8)	(4.7)	(11.5)
	$\chi^2 = 0.93$	$\chi^2 = 4.01*$	
Number Employed Related	1,050	67	1,082
Number Employed Unrelated	863	34	290
(% Employed Related)	(54.9)	(66.3)	(78.9)
	$\chi^2 = 4.64*$	$\chi^2 = 7.89**$	

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 25

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR MALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(25-34 Year Olds)

Outcome	Traditional Males	Nontraditional Males	Traditional Females
Number Completed Training	404	31	962
Number Dropped Training	278	34	453
(% Dropped)	(40.8)	(52.3)	(32.0)
	$\chi^2 = 2.79$	$\chi^2 = 10.69***$	
Number in Labor Force	338	35	777
Number Not in Labor Force	16	2	155
(% Labor Force Participation)	(95.5)	(94.6)	(83.4)
	$\chi^2 = 0.03$	$\chi^2 = 2.53$	
Number Employed	323	32	724
Number Unemployed	15	3	53
(% Unemployed)	(4.4)	(8.6)	(6.8)
	$\chi^2 = 0.45$	$\chi^2 = .004$	
Number Employed Related	246	21	626
Number Employed Unrelated	77	11	98
(% Employed Related)	(76.2)	(65.6)	(86.5)
	$\chi^2 = 1.21$	$\chi^2 = 9.16**$	

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 26

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR MALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(35-44 Year Olds)

Outcome	Traditional Males	Nontraditional Males	Traditional Females
Number Completed Training	174	8	543
Number Dropped Training	105	11	206
(% Dropped)	(37.6)	(57.9)	(27.5)
	$\chi^2 = 2.28$		$\chi^2 = 7.01^{**}$
Number in Labor Force	154	8	431
Number Not in Labor Force	12	1	71
(% Labor Force Participation)	(92.8)	(88.9)	(85.9)
	$\chi^2 = 0.05$		$\chi^2 = 0.05$
Number Employed	145	8	399
Number Unemployed	9	0	32
(% Unemployed)	(5.8)	(0.0)	(7.4)
	$\chi^2 = 0.008$		$\chi^2 = 0.01$
Number Employed Related	101	6	329
Number Employed Unrelated	44	2	70
(% Employed Related)	(69.7)	(75.0)	(82.5)
	$\chi^2 = 0.006$		$\chi^2 = 0.006$

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 27

SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR MALES
ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
OBJECTIVES COMPARED WITH THOSE FOR
STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES
(Over 44 Year Olds)

Outcome	Traditional Males	Nontraditional Males	Traditional Females
Number Completed Training	139	12	293
Number Dropped Training	77	6	72
(% Dropped)	(35.6)	(33.3)	(19.7)
	$\chi^2 = 0.004$	$\chi^2 = 1.21$	
Number in Labor Force	103	4	210
Number Not in Labor Force	10	5	70
(% Labor Force Participation)	(91.2)	(44.4)	(75.0)
	$\chi^2 = 12.81***$	$\chi^2 = 2.80$	
Number Employed	99	4	193
Number Unemployed	4	0	17
(% Unemployed)	(3.9)	(0.0)	(8.1)
	$\chi^2 = 0.89$	$\chi^2 = 0.12$	
Number Employed Related	65	4	155
Number Employed Unrelated	34	0	38
(% Employed Related)	(65.7)	(100.0)	(80.3)
	$\chi^2 = 0.79$	$\chi^2 = 0.12$	

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

nontraditional males in comprehensive high schools is chiefly attributed to a significantly lower dropout rate (26.2% compared with 40.0%). In addition, a negative welfare effect with respect to labor force participation and absence of the welfare gain associated with related employment for area vo-tech schools support the comparative advantage of comprehensive high school programs.

When the student's age is considered, the nontraditional male pattern differs dramatically from that of nontraditional females. Although the within group comparison does not show a clear advantage for any of the age groups, an across table comparison indicates that the younger nontraditional males fare better on average than those who are 25 years old and older. Dropout rates range all the way from 28.3% and 30.1% for the 18-24 and 16-17 year olds to 57.9% for those 35-44. The labor force participation rate of nontraditional males over 44 was less than half that of younger males.

A Summary Measure of the Relative Training and Labor Market Success of Sex Nontraditional Students

Nontraditional Females

As previously shown, nontraditional females were found to have higher dropout rates, lower labor force participation rates, and higher unemployment rates than either traditional females or traditional males. Of those individuals who were employed, the percent of nontraditional females employed in occupations related to their training was less than that for traditional females, but was not statistically different from

that for traditional males. The ratio of employed related to those not employed related (everyone who left training and was not employed in an occupation related to training) summarizes the combined impact of those separate "leakages" on the final outcome. Tables 28 and 29 present the results for nontraditional females with and without agriculture production enrollment. The comparison between traditional and nontraditional females can be interpreted as a "welfare" measure while the comparison between nontraditional females and traditional males measures the efficiency effect (see Section III for more complete discussion of these measures).

Of the 1,955 females exiting sex nontraditional training programs¹³ during 1978-1979 and 1979-1980, 226 (11.6%) were employed in occupations related to their training. This compares to 31.1% of the traditional females and 20.4% of the traditional males. Enrollment in a sex nontraditional occupational objective reduces the chances that a female will be employed related by two-thirds. Moreover, females enrolled in male traditional programs are approximately half as likely to be employed related as the males in those programs. Note that the welfare effect is negative for all groups except those over 34 years old. The efficiency effect is neutral for students in Oklahoma City and Tulsa and for students over 24 years old at enrollment. When a comparison across demographic groups is made, a larger proportion of nontraditional females trained in Oklahoma City and Tulsa, those trained in area vo-tech schools and those over 24 years old were employed related (see Table 39).

¹³ Does not include those continuing their education at post-secondary or adult level.

TABLE 28
SUCCESS RATES FOR NONTRADITIONAL FEMALES COMPARED
WITH THOSE FOR TRADITIONAL STUDENTS¹

	Traditional Females	Nontraditional Females	Traditional Males
Total Population			
No. of Students Exiting			
Training	15,282	1,955	25,114
No. Not Employed			
Related	10,527	1,729	19,993
No. Employed Related	4,755	226	5,121
% Employed Related	(31.1)	(11.6)	(20.4)
	$\chi^2 = 321.63***$	$\chi^2 = 88.68***$	
Oklahoma City & Tulsa			
No. of Students Exiting			
Training	3,490	267	3,092
No. Not Employed			
Related	2,358	204	2,298
No. Employed Related	1,132	63	794
% Employed Related	(32.4)	(23.6)	(25.7)
	$\chi^2 = 8.53**$	$\chi^2 = 0.46$	
Cities With Populations 20,000 - 100,000			
No. of Students Exiting			
Training	5,100	382	5,880
No. Not Employed			
Related	3,551	341	4,533
No. Employed Related	1,549	41	1,347
% Employed Related	(30.4)	(10.7)	(22.9)
	$\chi^2 = 65.62***$	$\chi^2 = 30.12***$	
Cities & Towns With Populations < 20,000			
No. of Students Exiting			
Training	6,692	1,306	16,142
No. Not Employed			
Related	4,618	1,184	13,162
No. Employed Related	2,074	122	2,980
% Employed Related	(31.0)	(9.3)	(18.5)
	$\chi^2 = 256.08***$	$\chi^2 = 68.12***$	

TABLE 28 (Continued)

	Traditional Females	Nontraditional Females	Traditional Males
Area Vo-Tech Schools			
No. of Students Exiting			
Training	9,819	708	11,941
No. Not Employed			
Related	6,482	563	8,892
No. Employed Related	3,337	145	3,049
% Employed Related	(34.0)	(20.5)	(25.5)
	$\chi^2 = 53.80***$	$\chi^2 = 8.77**$	
Comprehensive High Schools			
No. of Students Exiting			
Training	5,427	1,247	13,119
No. Not Employed			
Related	4,015	1,166	11,139
No. Employed Related	1,412	81	1,980
% Employed Related	(26.0)	(6.5)	(15.1)
	$\chi^2 = 221.42***$	$\chi^2 = 67.79***$	
16-17 Year Olds			
No. of Students Exiting			
Training	9,272	1,393	19,346
No. Not Employed			
Related	6,734	1,302	15,723
No. Employed Related	2,538	91	3,623
% Employed Related	(27.4)	(6.5)	(18.7)
	$\chi^2 = 282.05***$	$\chi^2 = 130.62***$	
18-24 Year Olds			
No. of Students Exiting			
Training	3,208	250	4,178
No. Not Employed			
Related	2,126	210	3,128
No. Employed Related	1,082	40	1,050
% Employed Related	(33.7)	(16.0)	(25.1)
	$\chi^2 = 32.45***$	$\chi^2 = 10.11**$	

TABLE 28 (Continued)

	Traditional Females	Nontraditional Females	Traditional Males
25-34 Year Olds			
No. of Students Exiting Training	1,415	154	682
No. Not Employed Related	789	103	436
No. Employed Related	626	51	246
% Employed Related	(44.2)	(33.1)	(36.0)
	$\chi^2 = 6.56^*$	$\chi^2 = 0.36$	
35-44 Year Olds			
No. of Students Exiting Training	749	75	279
No. Not Employed Related	420	47	178
No. Employed Related	329	28	101
% Employed Related	(43.9)	(37.3)	(36.2)
	$\chi^2 = 0.95$	$\chi^2 = 0.70$	
Over 44 Years Old			
No. of Students Exiting Training	365	39	216
No. Not Employed Related	210	25	151
No. Employed Related	155	14	65
% Employed Related	(42.5)	(35.9)	(30.1)
	$\chi^2 = 0.41$	$\chi^2 = 0.38$	

¹Includes Production Agriculture

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 29
 SUCCESS RATES FOR NONTRADITIONAL FEMALES COMPARED
 WITH THOSE FOR TRADITIONAL STUDENTS
 (Excluding Agriculture
 Production)

	Traditional Females	Nontraditional Females	Traditional Males
Total Population			
No. of Students Exiting Training	15,282	1,176	19,986
No. Not Employed Related	10,527	997	15,703
No. Employed Related	4,755	179	4,283
% Employed Related	(31.1)	(15.2)	(21.4)
	$\chi^2 = 130.65***$	$\chi^2 = 25.36***$	
Oklahoma City & Tulsa			
No. of Students Exiting Training	3,490	255	3,086
No. Not Employed Related	2,358	194	2,292
No. Employed Related	1,132	61	794
% Employed Related	(32.4)	(23.9)	(25.7)
	$\chi^2 = 7.55**$	$\chi^2 = 0.31$	
Cities With Population 20,000 - 100,000			
No. of Students Exiting Training	5,100	268	5,590
No. Not Employed Related	3,551	239	4,301
No. Employed Related	1,549	29	1,289
% Employed Related	(30.4)	(10.8)	(23.1)
	$\chi^2 = 45.96***$	$\chi^2 = 21.27***$	
Cities & Towns With Population < 20,000			
No. of Students Exiting Training	6,692	654	11,310
No. Not Employed Related	4,618	565	9,110
No. Employed Related	2,074	89	2,200
% Employed Related	(31.0)	(13.6)	(19.5)
	$\chi^2 = 85.83***$	$\chi^2 = 13.27***$	

TABLE 29 (Continued)

	Traditional Females	Nontraditional Females	Traditional Males
Area Vo-Tech Schools			
No. of Students Exiting Training	9,819	680	11,891
No. Not Employed Related	6,482	553	8,871
No. Employed Related	3,337	127	3,020
% Employed Related	(34.0)	(18.7)	(25.4)
	$\chi^2 = 66.72***$		$\chi^2 = 15.13***$
Comprehensive High Schools			
No. of Students Exiting Training	5,427	496	8,041
No. Not Employed Related	4,015	444	6,790
No. Employed Related	1,412	52	1,251
% Employed Related	(26.0)	(10.5)	(15.6)
	$\chi^2 = 58.10***$		$\chi^2 = 8.91**$
16-17 Year Olds			
No. of Students Exiting Training	9,272	693	14,930
No. Not Employed Related	6,734	630	12,006
No. Employed Related	2,538	63	2,924
% Employed Related	(27.4)	(9.1)	(19.6)
	$\chi^2 = 110.78***$		$\chi^2 = 46.48***$
18-24 Year Olds			
No. of Students Exiting Training	3,208	208	3,548
No. Not Employed Related	2,126	172	2,614
No. Employed Related	1,082	36	934
% Employed Related	(33.7)	(17.3)	(26.3)
	$\chi^2 = 23.18***$		$\chi^2 = 7.88**$

TABLE 29 (Continued)

	Traditional Females	Nontraditional Females	Traditional Males
25-34 Year Olds			
No. of Students Exiting Training	1,415	146	665
No. Not Employed Related	789	103	431
No. Employed Related	626	43	234
% Employed Related	(44.2)	(29.5)	(35.2)
	$\chi^2 = 11.22***$	$\chi^2 = 1.51$	
35-44 Year Olds			
No. of Students Exiting Training	749	69	275
No. Not Employed Related	420	46	178
No. Employed Related	329	23	97
% Employed Related	(43.9)	(33.3)	(35.3)
	$\chi^2 = 2.48$	$\chi^2 = .03$	
Over 44 Years Old			
No. of Students Exiting Training	365	37	211
No. Not Employed Related	210	25	151
No. Employed Related	155	12	60
% Employed Related	(42.5)	(32.4)	(28.4)
	$\chi^2 = 0.41$	$\chi^2 = 0.38$	

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

Excluding those students enrolled in production agriculture, does not alter the qualitative conclusions of the previous paragraph, however the quantitative impact is noteworthy. Eliminating production agriculture students raises the percent of nontraditional females employed related from 11.6% to 15.2%. The change for traditional males (20.4% to 21.4%) was less pronounced. For the smallest cities, dropping agriculture production increases the percent of nontraditional females employed related from 9.3% to 13.6%; for comprehensive high schools the increase is from 6.5% to 10.5% and for 16-17 year olds the increase was from 6.5% to 9.1%.

Nontraditional Males

Data on the overall labor market performance of nontraditional males compared with traditional students are presented in Tables 30 and 31. Of the 1,286 nontraditional males exiting training,¹⁴ 297 (23.1%) were employed related. The experience of nontraditional males compares favorably with traditional males (20.4% employed related) but unfavorably with traditional females (31.1% employed related). Data in Tables 30-31 support the tentative conclusions of the previous section that nontraditional males fared relatively better in the intermediate-sized cities. (Also see Table 39 for across-group comparison statistics).

In contrast to the conclusion reached when dropout, labor force participation and employment behavior were analyzed separately, summary data do not depict a clear and consistent advantage for the comprehensive high school nontraditional males. The efficiency effects are

¹⁴ Does not include those continuing their education at the post-secondary or adult level.

TABLE 30
SUCCESS RATES FOR NONTRADITIONAL MALES COMPARED
WITH THOSE FOR TRADITIONAL STUDENTS¹

	Traditional Males	Nontraditional Males	Traditional Females
Total Population			
No. of Students Exiting			
Training	25,114	1,286	15,282
No. Not Employed			
Related	19,993	989	10,527
No. Employed Related	5,121	297	4,755
% Employed Related	(20.4)	(23.1)	(31.1)
	$\chi^2 = 5.32^*$	$\chi^2 = 35.62^{***}$	
Oklahoma City & Tulsa			
No. of Students Exiting			
Training	3,092	382	3,490
No. Not Employed			
Related	2,298	309	2,358
No. Employed Related	794	73	1,132
% Employed Related	(25.7)	(19.1)	(32.4)
	$\chi^2 = 7.49^{**}$	$\chi^2 = 27.90^{***}$	
Cities With Populations 20,000 - 100,000			
No. of Students Exiting			
Training	5,880	371	5,100
No. Not Employed			
Related	4,533	273	3,551
No. Employed Related	1,347	98	1,549
% Employed Related	(22.9)	(26.4)	(30.4)
	$\chi^2 = 2.22$	$\chi^2 = 2.39$	
Cities & Towns With Populations < 20,000			
No. of Students Exiting			
Training	16,142	533	6,692
No. Not Employed			
Related	13,162	407	4,618
No. Employed Related	2,980	126	2,074
% Employed Related	(18.5)	(23.6)	(31.0)
	$\chi^2 = 8.79^{**}$	$\chi^2 = 12.26^{***}$	

TABLE 30 (Continued)

	Traditional Males	Nontraditional Males	Traditional Females
Area Vo-Tech Schools			
No. of Students Exiting Training	11,941	521	9,819
No. Not Employed Related	8,892	394	6,482
No. Employed Related	3,049	127	3,337
% Employed Related	(25.5)	(24.4)	(34.0)
	$\chi^2 = 0.29$	$\chi^2 = 20.08***$	
Comprehensive High Schools			
No. of Students Exiting Training	13,119	760	5,427
No. Not Employed Related	11,139	591	4,015
No. Employed Related	1,980	169	1,412
% Employed Related	(15.1)	(22.2)	(26.0)
	$\chi^2 = 27.48***$	$\chi^2 = 4.81*$	
16-17 Year Olds			
No. of Students Exiting Training	19,346	949	9,272
No. Not Employed Related	15,723	752	6,734
No. Employed Related	3,623	197	2,538
% Employed Related	(18.7)	(20.8)	(27.4)
	$\chi^2 = 2.31$	$\chi^2 = 18.88***$	
18-24 Year Olds			
No. of Students Exiting Training	4,178	226	3,208
No. Not Employed Related	3,128	159	2,126
No. Employed Related	1,050	67	1,082
% Employed Related	(25.1)	(29.6)	(33.7)
	$\chi^2 = 2.08$	$\chi^2 = 1.40$	

TABLE 30 (Continued)

	Traditional Males	Nontraditional Males	Traditional Females
25-34 Year Olds			
No. of Students Exiting Training	682	65	1,415
No. Not Employed Related	436	44	789
No. Employed Related	246	21	626
% Employed Related	(36.0)	(32.3)	(44.2)
	$\chi^2 = 0.22$	$\chi^2 = 3.13$	
35-44 Year Olds			
No. of Students Exiting Training	279	19	749
No. Not Employed Related	178	13	420
No. Employed Related	101	6	329
% Employed Related	(36.2)	(31.6)	(43.9)
	$\chi^2 = 0.03$	$\chi^2 = 0.70$	
Over 44 Years Old			
No. of Students Exiting Training	216	18	365
No. Not Employed Related	151	14	210
No. Employed Related	65	4	155
% Employed Related	(30.1)	(22.2)	(42.5)
	$\chi^2 = 0.19$	$\chi^2 = 2.12$	

¹Includes Agriculture Production

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

TABLE 31
 SUCCESS RATES FOR NONTRADITIONAL MALES COMPARED
 WITH THOSE FOR TRADITIONAL STUDENTS
 (Excluding Agriculture Production)

	Traditional Males	Nontraditional Males	Traditional Females
Total Population			
No. of Students Exiting Training	19,986	1,286	15,282
No. Not Employed Related	15,703	989	10,527
No. Employed Related	4,283	297	4,755
% Employed Related	(21.4)	(23.1)	(31.1)
	$\chi^2 = 1.88$	$\chi^2 = 35.62***$	
Oklahoma City & Tulsa			
No. of Students Exiting Training	3,086	382	3,490
No. Not Employed Related	2,292	309	2,358
No. Employed Related	794	73	1,132
% Employed Related	(25.7)	(19.1)	(32.4)
	$\chi^2 = 7.59**$	$\chi^2 = 27.90***$	
Cities With Populations 20,000 - 100,000			
No. of Students Exiting Training	5,590	371	5,100
No. Not Employed Related	4,301	273	3,551
No. Employed Related	1,289	98	1,549
% Employed Related	(23.1)	(26.4)	(30.4)
	$\chi^2 = 2.01$	$\chi^2 = 2.39$	
Cities & Towns With Populations < 20,000			
No. Of Students Exiting Training	11,310	533	6,692
No. Not Employed Related	9,110	407	4,618
No. Employed Related	2,200	126	2,074
% Employed Related	(19.5)	(23.6)	(31.0)
	$\chi^2 = 5.39*$	$\chi^2 = 12.26***$	

TABLE 31 (Continued)

	Traditional Males	Nontraditional Males	Traditional Females
Area Vo-Tech Schools			
No. of Students Exiting Training	11,891	521	9,819
No. Not Employed Related	8,871	394	6,482
No. Employed Related	3,020	127	3,337
% Employed Related	(25.4)	(24.4)	(34.0)
	$\chi^2 = 0.22$	$\chi^2 = 20.08***$	
Comprehensive High Schools			
No. of Students Exiting Training	8,041	760	5,427
No. Not Employed Related	6,790	591	4,015
No. Employed Related	1,251	169	1,412
% Employed Related	(15.6)	(22.2)	(26.0)
	$\chi^2 = 22.40***$	$\chi^2 = 4.81*$	
16-17 Year Olds			
No. of Students Exiting Training	14,930	949	9,272
No. Not Employed Related	12,006	752	6,734
No. Employed Related	2,924	197	2,538
% Employed Related	(19.6)	(20.8)	(27.4)
	$\chi^2 = 0.71$	$\chi^2 = 18.88***$	
18-24 Year Olds			
No. of Students Exiting Training	3,548	226	3,208
No. Not Employed Related	2,614	159	2,126
No. Employed Related	934	67	1,082
% Employed Related	(26.3)	(29.6)	(33.7)
	$\chi^2 = 1.04$	$\chi^2 = 1.40$	

TABLE 31 (Continued)

	Traditional Males	Nontraditional Males	Traditional Females
25-34 Year Olds			
No. of Students Exiting			
Training	665	65	1,415
No. Not Employed			
Related	431	44	789
No. Employed Related	234	21	626
% Employed Related	(35.2)	(32.3)	(44.2)
	$\chi^2 = 0.11$	$\chi^2 = 3.13$	
35-44 Year Olds			
No. of Students Exiting			
Training	275	19	749
No. Not Employed			
Related	178	13	420
No. Employed Related	97	6	329
% Employed Related	(35.3)	(31.6)	(43.9)
	$\chi^2 = 0.006$	$\chi^2 = 0.70$	
Over 44 Years Old			
No. of Students Exiting			
Training	211	18	365
No. Not Employed			
Related	151	14	210
No. Employed Related	60	4	155
% Employed Related	(28.4)	(22.2)	(42.5)
	$\chi^2 = 0.08$	$\chi^2 = 2.12$	

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

negative in both cases, while the welfare effect is neutral for area vo-tech students and positive for comprehensive high school students. The across group comparison indicates no difference in the percentage of nontraditional males employed related in area schools (24.4%) as compared to high schools (22.2%).

These data also lead to different conclusions with respect to students' age. In spite of the higher dropout and lower labor force participation rates, the percent of older (over 24 but less than 44 years of age) nontraditional males employed related compares favorably with the younger groups.

Excluding production agriculture, raises the percent of nontraditional males employed related from 20.4% to 21.4% and changes the welfare effect from positive to neutral. The statistical significance of the other measures are not altered and the quantitative impact is not great.

Wages

The ultimate objective of recruiting, enrolling and training females for male traditional occupations was the enhancement of their wage-earning potential. How do the wages of the 226 nontraditional females who were employed in fields related to their training compare 1) with those of females employed in traditional occupations and 2) with those of males employed in the same occupations? As shown in Table 32, the average wage for nontraditional females was \$4.62¹⁵ an hour, significantly higher than the traditional female average of \$3.98 but significantly lower than the traditional male average of \$5.48. Table 33

¹⁵ All wage rates are stated in constant 1979 dollars. 1979-80 wages were deflated by 7.2%, the change in the GNP price deflation for 4th quarter, 1979 to 4th quarter, 1980.

TABLE 32
WAGE RATES FOR FEMALES ENROLLED IN SEX NONTRADITIONAL
OCCUPATIONAL OBJECTIVES COMPARED WITH THOSE
FOR STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES

Wage Per Hour	Traditional Females Number	(%)	Nontraditional Females Number	(%)	Traditional Males Number	(%)
Total						
Population						
< \$4	1,174	(36.1)	42	(30.4)	530	(14.8)
\$4 - \$6	1,832	(56.3)	63	(45.6)	1,718	(48.1)
> \$6	248	(7.6)	33	(23.9)	1,324	(37.1)
Average	\$3.98		\$4.62		\$5.48	
	$\chi^2 = 46.28***$			$\chi^2 = 27.41***$		
Oklahoma City						
& Tulsa						
< \$4	358	(36.6)	12	(24.5)	85	(12.5)
\$4 - \$6	540	(55.3)	29	(59.2)	339	(49.7)
> \$6	79	(8.1)	8	(16.3)	258	(37.8)
	$\chi^2 = \text{N/A}$			$\chi^2 = 11.61***$		
Cities (20,000- 100,000)						
< \$4	542	(48.5)	3	(20.0)	119	(13.0)
\$4 - \$6	502	(44.9)	9	(60.0)	469	(51.1)
> \$6	74	(6.6)	3	(20.0)	330	(35.9)
	$\chi^2 = \text{N/A}$			$\chi^2 = \text{N/A}$		
Cities & Towns (< 20,000)						
< \$4	874	(49.7)	27	(36.5)	326	(16.5)
\$4 - \$6	790	(44.9)	25	(33.8)	910	(46.1)
> \$6	95	(5.4)	22	(29.7)	736	(37.4)
	$\chi^2 = \text{N/A}$			$\chi^2 = 19.96***$		

TABLE 32 (Continued)

Wage Per Hour	Traditional Females Number	(%)	Nontraditional Females Number	(%)	Traditional Males Number	(%)
Area Vo-Tech Schools						
< \$4	1,139	(44.4)	9	(11.1)	213	(9.6)
\$4 - \$6	1,231	(48.0)	41	(50.6)	1,091	(49.2)
> \$6	195	(7.6)	31	(38.3)	915	(41.2)
	$\chi^2 = 106.65***$			$\chi^2 = 0.39$		
Comprehensive High Schools						
< \$4	629	(49.0)	33	(57.9)	316	(23.5)
\$4 - \$6	601	(46.8)	22	(38.6)	625	(46.5)
> \$6	53	(4.1)	2	(3.5)	402	(30.0)
	$\chi^2 = N/A$			$\chi^2 = 39.88***$		
16-17 Year Olds						
< \$4	1,180	(52.6)	28	(43.8)	395	(15.6)
\$4 - \$6	977	(43.5)	30	(46.9)	1,255	(49.7)
> \$6	88	(3.9)	6	(9.4)	876	(34.7)
	$\chi^2 = N/A$			$\chi^2 = 42.04***$		
18-24 Year Olds						
< \$4	332	(41.5)	8	(26.7)	91	(12.0)
\$4 - \$6	401	(50.1)	8	(26.7)	361	(47.6)
> \$6	68	(8.5)	14	(46.7)	306	(40.4)
	$\chi^2 = N/A$			$\chi^2 = N/A$		
25-34 Year Olds						
< \$4	151	(33.0)	2	(7.1)	21	(13.6)
\$4 - \$6	252	(55.0)	11	(39.3)	51	(33.1)
> \$6	55	(12.0)	15	(53.6)	82	(53.2)
	$\chi^2 = 38.45***$			$\chi^2 = N/A$		

TABLE 32 (Continued)

Wage Per Hour	Traditional Females Number	(%)	Nontraditional Females Number	(%)	Traditional Males Number	(%)
35-44 Year						
Olds						
< \$4	55	(24.7)	1	(7.7)	8	(13.3)
\$4 - \$6	137	(61.4)	9	(69.2)	21	(35.0)
> \$6	31	(13.9)	3	(23.1)	31	(51.7)
		$\chi^2 = 2.33$		$\chi^2 = 5.20^*$		
Over 44						
Years Old						
< \$4	41	(38.7)	3	(33.3)	9	(19.6)
\$4 - \$6	59	(55.7)	5	(55.6)	21	(45.7)
> \$6	6	(5.7)	1	(11.1)	16	(34.8)
		$\chi^2 = 0.47$		$\chi^2 = \text{N/A}$		

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

N/A -- statistic could not be computed because of lower expected frequencies in some cells.

TABLE 33
WAGE RATES FOR MALES ENROLLED IN SEX NONTRADITIONAL
OCCUPATIONAL OBJECTIVES COMPARED WITH THOSE
FOR STUDENTS ENROLLED IN TRADITIONAL
OCCUPATIONAL OBJECTIVES

Wages Per Hour	Traditional Males		Nontraditional Males		Traditional Females	
	Number	(%)	Number	(%)	Number	(%)
Total						
Population						
< \$4	530	(14.8)	83	(34.2)	1,174	(36.1)
\$4 - \$6	1,718	(48.1)	124	(51.0)	1,832	(56.3)
> \$6	1,324	(37.1)	36	(14.8)	248	(7.6)
Average	\$5.48		\$4.40		\$3.98	
	$\chi^2 = 84.85***$			$\chi^2 = 15.76***$		
Oklahoma City						
& Tulsa						
< \$4	85	(12.5)	11	(20.4)	358	(36.6)
\$4 - \$6	339	(49.7)	33	(61.1)	540	(55.3)
> \$6	258	(37.8)	10	(18.5)	79	(8.1)
	$\chi^2 = 9.02*$			$\chi^2 = N/A$		
Cities (20,000-100,000)						
< \$4	119	(13.0)	31	(38.8)	542	(48.5)
\$4 - \$6	469	(51.1)	38	(47.5)	502	(44.9)
> \$6	330	(35.9)	11	(13.8)	74	(6.6)
	$\chi^2 = 43.36***$			$\chi^2 = 6.94*$		
Cities & Towns						
(< 20,000)						
< \$4	326	(16.5)	41	(37.6)	874	(49.7)
\$4 - \$6	910	(46.1)	53	(48.6)	790	(44.9)
> \$6	736	(37.4)	15	(13.8)	95	(5.4)
	$\chi^2 = 40.49***$			$\chi^2 = 15.55***$		

TABLE 33 (Continued)

Wages Per Hour	Traditional Males Number	(%)	Nontraditional Males Number	(%)	Traditional Females Number	(%)
Area Vo-Tech Schools						
< \$4	213	(9.6)	34	(34.7)	1,139	(44.4)
\$4 - \$6	1,091	(49.2)	50	(51.0)	1,231	(48.0)
> \$6	915	(41.2)	14	(14.3)	195	(7.6)
		$\chi^2 = 72.51***$		$\chi^2 = 7.57**$		
Comprehensive High Schools						
< \$4	316	(23.5)	48	(33.3)	629	(49.0)
\$4 - \$6	625	(46.5)	74	(51.4)	601	(46.8)
> \$6	402	(30.0)	22	(15.3)	53	(4.1)
		$\chi^2 = 15.55***$		$\chi^2 = 37.89***$		
16-17 Year Olds						
< \$4	395	(15.6)	67	(40.6)	1,180	(52.6)
\$4 - \$6	1,255	(49.7)	76	(46.1)	977	(43.5)
> \$6	876	(34.7)	22	(13.3)	88	(3.9)
		$\chi^2 = 77.80***$		$\chi^2 = 34.31***$		
18-24 Year Olds						
< \$4	91	(12.0)	13	(23.6)	332	(41.5)
\$4 - \$6	361	(47.6)	35	(63.6)	401	(50.1)
> \$6	306	(40.4)	7	(12.7)	68	(8.5)
		$\chi^2 = 18.30***$		$\chi^2 = N/A$		
25-34 Year Olds						
< \$4	21	(13.6)	0	(0.0)	151	(33.0)
\$4 - \$6	51	(33.1)	8	(61.5)	252	(55.0)
> \$6	82	(53.2)	5	(38.5)	55	(12.0)
		$\chi^2 = N/A$		$\chi^2 = N/A$		

TABLE 33 (Continued)

Wage Per Hour	Traditional Males		Nontraditional Males		Traditional Females	
	Number	(%)	Number	(%)	Number	(%)
35-44 Year						
Olds						
< \$4	8	(13.3)	0	(0.0)	55	(24.7)
\$4 - \$6	21	(35.0)	3	(60.0)	137	(61.4)
> \$6	31	(51.7)	2	(40.0)	31	(13.9)
		$\chi^2 = 14.90^{***}$		$\chi^2 = 3.54$		
Over 44						
Years Old						
< \$4	9	(19.6)	2	(66.7)	41	(38.7)
\$4 - \$6	21	(45.7)	1	(33.3)	59	(55.7)
> \$6	16	(34.8)	0	(0.0)	6	(5.7)
		$\chi^2 = 3.92$		$\chi^2 = 1.01$		

* Significant at .05 level

** Significant at .01 level

*** Significant at .001 level

N/A --statistic could not be computed because of lower expected frequencies in some cells

shows that male nontraditional wages which averaged \$4.40 per hour were significantly lower than traditional male wages. Average wages by size of city, type school, and age of student are presented in Tables 34 and 35.

As shown in Table 36, traditional female vocational students earned about 72 cents for each dollar earned by traditional male vocational students. While it appears that the male-female earnings gap for vocational students is substantially less than the frequently quoted 59¢ on the dollar figure for all males and females who work full time, part of the difference may be attributed to an overrepresentation of individuals less than 25 years old. Department of Labor data indicate that the earnings gap widens after age 35, as men's careers continue to advance and their earnings increase while women's earnings become stagnant around age 30 (12). Moreover, regardless of age individuals in this population are likely to be employed in entry-level positions.

Females employed in sex nontraditional occupations earned \$.44 an hour, on average, more than females employed in sex traditional occupations, closing 26% of the \$1.69 gap in male-female traditional wages. And in some cases, for students trained in intermediate sized cities, in comprehensive high schools and those between 35-44 years of age, working in a nontraditional occupation led to lower wages than employment in traditional occupations.

V. SUMMARY

A comparative follow-up technique was used to assess sex nontraditional vocational training efforts in Oklahoma during the 1978-79 and 1979-80 school years. Specifically, the dropout behavior, labor force

TABLE 34
AVERAGE HOURLY WAGES BY SEX AND TRADITIONALITY
OF OCCUPATIONAL OBJECTIVES¹
(1978 - 1979)

Group	Traditional Males		Nontraditional Males	Traditional Females	Nontraditional Females	
	Total	W/O Ag Prod			Total	W/O Ag Prod
Total	5.41	5.44	4.38	3.95	4.83	4.92
Oklahoma City & Tulsa Cities (20,000- 100,000)	5.25	5.29	4.73	4.07	4.48	4.48
Cities (< 20,000)	5.29	5.31	4.14	3.87	5.29	5.29
Area Vo- Tech Schools	5.52	5.60	4.33	3.94	4.92	5.10
Comprehen- sive High Schools	5.60	5.61	4.25	4.02	5.60	5.60
16-17 Year Olds	5.10	5.05	4.48	3.84	3.92	3.91
18-24 Year Olds	5.35	5.36	4.22	3.74	4.40	4.49
25-34 Year Olds	5.45	5.49	4.67	4.08	4.92	4.92
35-44 Year Olds	5.92	5.92	5.82	4.29	5.77	5.77
Over 44 Years Old	6.29	6.29	6.02	4.60	5.65	5.65
	5.29	5.29	3.70	4.87	3.81	3.81

¹ Includes only those working in occupations related to training.

TABLE 35
AVERAGE HOURLY WAGES BY SEX AND TRADITIONALITY
OF OCCUPATIONAL OBJECTIVES¹
(1979 - 1980)

Group	Traditional Males		Nontraditional Males	Traditional Females	Nontraditional Females	
	Total	W/O Ag Prod			Total	W/O Ag Prod
Total	5.98	6.00	4.75	4.29	4.73	4.93
Oklahoma City & Tulsa Cities (20,000- 100,000)	5.93	5.93	4.98	4.50	4.90	5.00
Cities (< 20,000)	5.95	6.00	4.62	4.30	4.14	3.96
Area Vo- Tech Schools Comprehen- sive High Schools	6.01	6.03	4.77	4.18	4.70	5.04
16-17 Year Olds	6.08	6.09	4.74	4.34	5.23	5.30
18-24 Year Olds	5.79	5.74	4.76	4.20	3.89	3.78
25-34 Year Olds	5.87	5.85	4.73	4.13	4.25	4.26
35-44 Year Olds	6.09	6.18	4.62	4.41	4.97	5.95
Over 44 Years Old	6.90	6.90	5.31	4.64	6.01	6.01
	6.27	6.27	5.32	4.82	4.57	4.57
	5.71	5.71	5.14	4.21	4.31	4.31

¹ Includes only those working in occupations related to training.

TABLE 36
MALE - FEMALE EARNINGS GAP
(1979-80 Wage Data)

Group	Gap in \$ ¹	Female Traditional Earnings as a % of Male Traditional Earnings	Incremental Female Earnings Associated with Employment in Female Nontraditional ² Occupations	% Gap Closed
Total	1.69	71.7	.44	26.0
Oklahoma City & Tulsa	1.43	75.9	.40	28.0
Small Cities (20,000-100,000)	1.65	72.3	-.16	-9.7
Rural (Cities < 20,000)	1.83	69.6	.52	28.4
Area Vo-Tech Schools	1.74	71.4	.89	51.1
Comprehensive High Schools	1.59	72.5	-.31	-19.5
16-17 Year Olds	1.74	70.4	.12	6.9
18-24 Year Olds	1.68	72.4	.56	33.3
25-34 Year Olds	2.26	67.2	1.93	85.4
35-44 Year Olds	1.45	76.9	-.25	-17.2
Over 44 Years Old	1.50	73.7	.10	6.7

¹ Average wage for male traditional minus average wage for female traditional

² Average wage for female nontraditional minus average wage female traditional

participation, unemployment, training related employment, and wages of sex nontraditional and sex traditional students were compared. First, training and labor market outcomes for nontraditional students were compared with those outcomes for traditional students of the same sex. This comparison was interpreted as a measure of the "welfare effects" of pursuing nontraditional training, where a negative welfare effect indicates that nontraditional students were worse off, on average, than their counterparts who pursued traditional occupational objectives. Since the policy to recruit, enroll and train students in sex nontraditional occupations was designed to make individuals better off -- particularly, to enhance the earnings of females previously locked into low-pay, dead-end female jobs -- negative welfare effects from pursuing nontraditional training must be interpreted as a strong indication that the policy is not working as intended.

Second, outcomes for nontraditional students were compared with those for traditional students of the opposite sex. This comparison yielded a measure of the efficiency effects of allocating scarce resources to training sex nontraditional students. To the extent that proportionally fewer sex nontraditional students are productively employed in the fields for which they are trained, training dollars are underutilized and the additional traditional students who would have, on average, made better use of the opportunity were not trained. There are well-established precedents for supporting policies which are known to be inefficient and in my judgment, negative efficiency effects need not be considered as damaging as negative welfare effects.

The major findings of this analysis can be summarized as follows:

1. Of the 1,955 females exiting sex nontraditional vocational programs, 226 were employed in jobs related to their training.

Negative welfare and efficiency effects were identified with regard to dropout behavior, labor force participation, and unemployment. When employment related as a percent of employment is considered, the welfare effect was negative, but the efficiency effect was neutral.

2. Of the 1,286 males exiting sex nontraditional vocational programs, 297 were employed in jobs related to their training. Positive welfare effects were found with regard to dropout behavior and employed related as a percent of employment. Welfare effects for labor force participation and unemployment were neutral. The efficiency effect was positive for labor force participation, neutral for dropout behavior and unemployment and negative for employed related as a percent of employment.
3. Negative effects were least pronounced for female nontraditional students trained in Oklahoma City and Tulsa, those trained in area vo-tech schools, and those over 24 years of age.
4. Nontraditional males trained in cities with populations between 20,000 - 100,000 clearly fared better than those trained in Oklahoma City and Tulsa or in smaller rural cities and towns. No clear advantage was found for school type or age subgroups.
5. A comparison based on employed related as a percent of all students exiting training indicated that traditional females were almost three times more likely than nontraditional females to be employed in the field for which trained and that traditional males were almost two times as likely to be employed related. Nontraditional males, on the other hand, were some-

what more likely than traditional males to be employed related, although not as likely as traditional females.

6. Females working in traditional male occupations earned significantly lower wages than the males employed in those occupations but their wages were significantly higher than those earned by females employed in traditional occupations. Males working in traditional female occupations earned significantly higher wages than the females employed in those occupations, but they earned significantly lower wages than males employed in traditional occupations. About one-fourth of the male-female earnings gap was closed by female employment in male traditional fields.

For the females studied, 226 were earning higher wages in non-traditional occupations than they could have expected, on average, had they obtained traditional jobs. However, because of the high unemployment and low labor force participation experienced by nontraditional females, 128 more women were not working at all (the difference in the actual number of unemployed and not in labor force minus the number expected if traditional female rates had prevailed for both groups). Suppose, we use a simple cost-benefit approach to determine if the gains resulting from the higher rates accruing to nontraditional females are sufficient to offset the loss of wages to those not working.

To make as favorable a case for the policy as possible, we make the following assumptions:

1. Nontraditional female real earnings will triple in 20 years (implying an age-earnings curve somewhat steeper than that for all males in the labor force).

2. Traditional female real earnings will increase 1.6 times in 20 years (a rate consistent with the age-earnings profile of females who work).
3. The additional 32 nontraditional females who were unemployed will find nontraditional employment within a year.
4. A real discount rate of 5% is assumed.

Using the constant dollar wage data of Table 33, the present value of the incremental income stream accruing to the 226 nontraditional females in year one and 258 thereafter (226 + 32 currently unemployed) is \$3,558,924.88. However, the present value of the foregone earnings of the additional 96 women who dropped out of the labor force equals \$4,227,314.91, yielding a benefit-cost ratio less than one. Even given these favorable assumptions, the costs associated with nontraditional training exceed the benefits for the group.

Implications and Recommendations

This report contains evidence that females who pursue male traditional vocational training are not currently achieving the level of labor market success that traditional students achieve. While the higher wages reported by the 226 nontraditional females who were successful document the legitimacy of an "open access to training" policy, the higher dropout and unemployment rates, the lower labor force participation rate and the smaller ratio of working related to employment make broad-scale aggressive recruitment of females for male traditional training seem ill-advised at the present time. While the nontraditional males in this population fared significantly better, on balance, than the nontraditional females in terms of the welfare and efficiency measures

utilized in the analysis, the lack of a clear economic motive for encouraging male employment in traditional female occupations makes a governmental policy to recruit nontraditional males questionable as well.

The following specific recommendations are based on the findings of this research:

1. These findings should be presented to national legislative and policy-making bodies with the recommendation that the regulation requiring states to offer incentives to schools to recruit students for sex nontraditional training be suspended until the negative welfare effects identified in this research can be reduced.
2. This analysis should be repeated in three to five years to determine long-term differences in the labor market experiences of traditional and nontraditional students.
3. Additional research should be undertaken immediately to determine personal and programmatic differences between those students who successfully completed training and obtained employment in nontraditional fields and those whose nontraditional training did not culminate with training related employment.
4. If recruitment is to be mandated by federal policy, it should be targeted so as to minimize the negative effects; that is, recruitment for nontraditional females should be centered in Oklahoma City and Tulsa, in area vo-tech schools, and among adult women.
5. Females contemplating nontraditional training should be informed

of the reduced odds that they will obtain training related employment. Further, they should be informed that the actual relative wage advantage of nontraditional employment is not as great as they might think; that is, that the average wage for females in male traditional jobs was significantly lower than the average wage for those occupations.

6. These results clearly indicate that the State Department of Vocational and Technical Education Product Index evaluation discriminates against programs which enroll nontraditional females. If schools are required to promote sex nontraditional training for females, the index should be revised to eliminate its perverse impact.

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APPENDIX

TABLE 37
THE IMPACT¹ OF EXCLUDING AGRICULTURE PRODUCTION
OCCUPATIONAL OBJECTIVES

Group	Effect	Impact	Result
Total Population	Related Placement ²	Increases MT rate from 20.4% to 21.4%	Welfare Effect is neutral
Total Population	Dropout	Increases FNT rate from 40.0% to 41.4% Increases MT rate from 36.4% to 40.1%	Efficiency Effect is neutral
Oklahoma City & Tulsa	Dropout	Increases FNT rate from 33.7% to 34.5%	Welfare Effect is negative
Cities & Towns < 20,000	Dropout	Increases MT rate from 33.9% to 39.1% Increases FNT rate from 38.4% to 41.0%	Welfare Effect is positive
Area Vo-Tech Schools	Dropout	Reduces FNT rate from 47.2% to 46.0%	Efficiency Effect is neutral
Comprehensive High Schools	Dropout	Reduces FNT rate from 35.4% to 35.1% Increases MT rate from 30.2% to 35.8%	Efficiency Effect is neutral
Comprehensive High Schools	Labor Force Participation	Increases FNT rate from 60.0% to 72.9%	Welfare Effect is neutral
Area Vo-Tech Schools	Unemployment	Increases FNT rate from 12.6% to 13.8%	Welfare Effect is negative
18-24 Year Olds	Dropout	Increases FNT rate from 39.2% to 41.3%	Welfare Effect is negative
25-34 Year Olds	Dropout	Reduces FNT rate from 32.5% to 28.8% Reduces MT rate from 40.8% to 39.7%	Efficiency Effect is positive
Over 44 Years Old	Dropout	Reduces FNT rate from 20.5% to 16.2% Reduces MT rate from 35.6% to 34.1%	Efficiency Effect is positive

TABLE 37 (Continued)

Group	Effect	Impact	Result
18-24 Year Olds	Related Place- ment ³	Increases FNT rate from 54.8% to 58.1% Increases MT rate from 54.9% to 55.9%	Efficiency Effect is positive
25-34 Year Olds	Related Place- ment ³	Reduces FNT rate from 78.5% to 75.4%	Welfare Effect is negative

¹Only differences that result in statistically significant changes are summarized. Complete data for the "Without Ag Production" analysis is available from the author upon request.

²A percent of those exiting training

³As a percent of those employed

MT = Male Traditional

MNT = Male Nontraditional

FT = Female Traditional

FNT = Female Nontraditional

TABLE 38
CITIES WITH POPULATION'S BETWEEN
20,000 - 100,000¹

Lawton	Bartlesville
Norman	Del City
Enid	Shawnee
Midwest City	Ponca City
Muskogee	Ardmore
Stillwater	Altus
Broken Arrow	Duncan
Moore	Bethany
Edmond	

¹ Based on April 1980 population

TABLE 39
CHI SQUARE STATISTICS FROM ACROSS GROUP COMPARISONS
FOR SEX NONTRADITIONAL STUDENTS

	Nontraditional Males			Nontraditional Females		
	Type of City	Type School	Age of Student	Type of City	Type School	Age of Student
% of Total Employed Related	5.81	0.68	11.51 ^{2**}	44.37***	85.02***	118.667 ^{2***}
Dropout	0.03	26.29***	21.11***	16.32***	25.47***	8.54
Labor Force Participation	2.77	3.44	N/A	15.26***	18.14***	40.00***
Unemployment	1.61	0.56	N/A	6.40*	2.32	4.71 ²
% of Employed Employed Related	7.78*	0.04	2.07	20.91***	28.42***	36.36 ^{2***}
Wages	5.92	0.07	N/A	N/A	42.03***	24.86 ^{2***}

¹Includes Agriculture Production

²16-17, 18-24, and 25-34 only

*Significant at the .05 level

**Significant at the .01 level

***Significant at the .001 level

N/A - Chi square statistic could not be calculated due to small frequencies in some cells

TABLE 40
 SELECTED TRAINING AND LABOR MARKET OUTCOMES FOR 14-15 YEAR
 OLDS ENROLLED IN SEX NONTRADITIONAL OCCUPATIONAL
 OBJECTIVES COMPARED WITH THOSE ENROLLED IN
 SEX TRADITIONAL OCCUPATIONAL OBJECTIVES

Outcome	Traditional Males	Nontraditional Males	Traditional Females	Nontraditional Females
Total Exiting				
Training	358	8	165	39
No. Not Employed				
Related	340	6	150	37
No. Employed				
Related	18	2	15	2
(% Employed Related)	(5.0)	(25.0)	(9.1)	(5.1)
Number Completed	62	2	55	1
Number Dropped	278	6	110	38
(% Dropped)	(81.8)	(75.0)	(66.6)	(97.4)
Number in Labor				
Force	36	2	20	2
Number Not In				
Labor Force	2	0	11	4
(% In Labor Force)	(94.8)	(100.0)	(64.5)	(33.3)
Number Employed	30	2	18	2
Number Unemployed	6	0	2	0
(% Unemployed)	(16.6)	(0.0)	(10.0)	(0.0)
Number Employed				
Related	18	2	15	2
Number Employed				
Unrelated	12	0	3	0
(% Employed Related)	(60.0)	(100.0)	(83.3)	(100.0)